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14 January 1960

MEMORANDUM FOR: Chief, Operations Branch, DPD-DD/P

FROM : Staff Weather Officer

SUBJECT : Atmospheric Conditions Contributing to High Resolution of Photography Obtained on Mission 8005

1. The meteorological conditions which existed over the target areas during this mission are well delineated by both the mission "take" and routine weather reports from the USSR. These latter include high-level atmospheric soundings (rawinsondes) as well as numerous surface weather observations. Analysis of the data reveals that the following features of the wind flow patterns and air mass thermodynamic properties combined to produce exceptionally good photographic conditions:

a. A Continental Polar air mass -- free of the salt haze characteristic of maritime air and too dry to produce low level clouds -- had very recently moved into the area.

b. The flow pattern in the low levels was such that air arriving in the target area had a trajectory from a colder region to the north. This meant that the air was thermodynamically unstable -- thus insuring that any smoke or dust would be rapidly dispersed through a deep layer of the atmosphere. In addition, there were no large industrial smoke sources upstream in the wind flow.

c. Surface wind speeds were ten knots or higher. Thus, aiding the rapid dispersal of smoke in the vicinity of industrial targets.

d. An upper level low pressure cell was centered over the northernmost target. The closed cyclonic wind circulation around this low eliminated the possibility of over-running warm moist air reaching the area to produce middle level types of cloud or haze aloft.

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